



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Hansong Zhang

Appl. No.: 09/923,398

Filed: August 8, 2001

For: **Method, System, and Computer
Program Product for Visibility
Culling of Terrain**

Confirmation No.: 2363

Art Unit: 2671

Examiner: Nguyen, Phu K.

Atty. Docket: 2198.010000

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First Supplemental Information Disclosure Statement

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98. The numbering on this First Supplemental Information Disclosure Statement is a continuation of the numbering in Applicant's Information Disclosure Statement filed on February 15, 2002 in connection with the above-captioned application.

Applicant has listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicant has checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- ☒ 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- ☐ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

- ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- ☐ c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$ _____ in payment of the fee under 37 C.F.R. § 1.17(p).
- ☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$ _____ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:
- ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign

application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☐ 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.

☐ 6. A concise explanation of the relevance of the non-English language document(s) appears below:

☒ 7. Copies of the documents are submitted herewith.

☐ 8. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. _____, filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

☐ 9. No copies of U.S. patents and patent application publications cited on the attached Form PTO-1449 are submitted in accordance with 1276 OG 55 because this application was filed after June 30, 2003.

☐ 10. It is expected that the examiner will review the prosecution and cited art in the parent application no(s). _____ in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

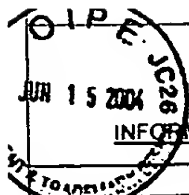


Kendrick P. Patterson
Attorney for Applicant
Registration No. 45,321

Date: June 15, 2004

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(202) 371-2600

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FORM PTO-1449

INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.
2198.0100001 (as amended)APPLICATION NO.
9/923,398FIRST NAMED INVENTOR
Hansong ZhangFILING DATE
August 8, 2001ART UNIT
2671

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA1					
	AB1					
	AC1					
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	AK1					

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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL1					Yes No
	AM1					Yes No
	AN1					Yes No
	AO1					Yes No
	AP1					Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	1	Cabral, B., et al., "Bidirectional Reflection Function from Surface Bump Maps," <i>Computer Graphics Proceedings, Annual Conference Series - SIGGRAPH '87</i> 21(4):273-281, Association for Computing Machinery, New York (July 1987).
AS	1	Cohen-Or, D. and Shaked, A., "Visibility and Dead-Zones in Digital Terrain Maps," <i>Eurographics 95</i> , 14(3):171-180, Blackwell Publishers (1995).
AT	1	Crocetta, L., et al., "Visibility in Digital Terrain Maps: A Fuzzy Approach," <i>14th Spring Conference on Computer Graphics</i> , pp. 257-266, Comenius University, Bratislava, Slovakia (April 1998).

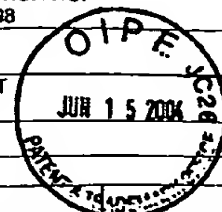
EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

SKGF Rev. 12/03/03

FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT	ATTY. DOCKET NO. 2198.0100001 (as amended)	APPLICATION NO. 09/923,398
	FIRST NAMED INVENTOR Hansong Zhang	
	FILING DATE August 8, 2001	ART UNIT 2671



U.S. PATENT DOCUMENTS						
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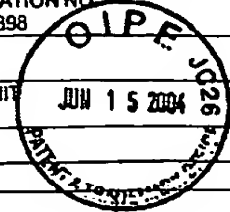
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS
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	AL2					No
	AM2					Yes
	AN2					No
	AO2					Yes
	AP2					No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)		
AR	2	De Floriani, L. and Magillo, P., "Algorithms for Visibility Computation on Digital Terrain Models," <i>Proceedings ACM Symposium on Applied Computing '93</i> , pp. 380-387, Association for Computing Machinery, New York (February 1993).
AS	2	De Floriani, L. and Magillo, P., "Computing Visibility Maps on a Digital Terrain Model," <i>Spatial Information Theory - A Theoretical Basis for GIS</i> , pp. 248-269, Springer-Verlag, Berlin, Germany (1993).
AT	2	De Floriani, L. and Magillo, P., "Visibility Algorithms on Triangulated Digital Terrain Models," <i>International Journal of Geographic Information Systems</i> 8(1):13-41, Taylor & Francis Ltd., London, England (January-February 1994).

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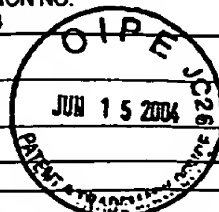
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL3						Yes No
	AM3						Yes No
	AN3						Yes No
	AO3						Yes No
	AP3						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)			
AR	3	De Florian, L. and Magillo, P., "Horizon Computation on a Hierarchical Triangulated Terrain Model," <i>The Visual Computer</i> 11(3):134-149, Springer-Verlag (1995).	
AS	3	Greene, N., et al., "Hierarchical Z-Buffer Visibility," <i>Computer Graphics Proceedings, Annual Conference Series - SIGGRAPH 93</i> , pp. 231-238, Association for Computing Machinery, New York (August 1993).	
AT	3	Lee, C.-H. and Shin, Y.G., "An Efficient Ray Tracing Method for Terrain Rendering," <i>Pacific Graphics '95</i> , pp. 180-193 (August 1995).	

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FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">ATTY. DOCKET NO. 2198.0100001 (as amended)</td> <td style="width: 40%;">APPLICATION NO. 09/923,398</td> </tr> <tr> <td colspan="2">FIRST NAMED INVENTOR Hansong Zhang</td> </tr> <tr> <td>FILING DATE August 8, 2001</td> <td>ART UNIT 2671</td> </tr> </table>	ATTY. DOCKET NO. 2198.0100001 (as amended)	APPLICATION NO. 09/923,398	FIRST NAMED INVENTOR Hansong Zhang		FILING DATE August 8, 2001	ART UNIT 2671
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL4						Yes No
	AM4						Yes No
	AN4						Yes No
	AO4						Yes No
	AP4						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	4	Max, Nelson L., "Shadows for Bump-Mapped Surfaces," <i>Advanced Computer Graphics - Proceedings of Computer Graphics Tokyo '86</i> , pp.144-156, Springer-Verlag, (1986).
	AS	4	Max, Nelson L., "Horizon Mapping: Shadows for Bump-Mapped Surfaces," <i>The Visual Computer</i> 4(2):109-117, Springer-Verlag, Berlin, Germany (July 1988).
	AT	4	Stewart, A. James, "Hierarchical Visibility in Terrains," <i>Eurographics Rendering Workshop 1997</i> , pp. 217-228, Springer, Vienna, Austria (1997).

EXAMINER	DATE CONSIDERED
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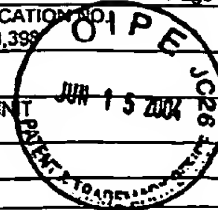
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	AL5						Yes No
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	AN5						Yes No
	AO5						Yes No
	AP5						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	5	Stewart, James A., "Fast Horizon Computation at All Points of a Terrain With Visibility and Shading Applications," <i>IEEE Transactions on Visualization and Computer Graphics</i> 4(1):82-93, IEEE (January-March 1998).
AS	5	Teller, S.J. and Sequin, C.H., "Visibility Preprocessing For Interactive Walkthroughs," <i>Computer Graphics Proceedings, Annual Conference Series - SIGGRAPH '91</i> 25(4):61-69, Association for Computing Machinery SIGGRAPH (July 1991).
AT	5	Trobec, T. et al., "Calculation of Visibility from Raster Relief Models," <i>14th Spring Conference on Computer Graphics</i> , pp. 257-266, Comenius University, Bratislava, Slovakia (April 1998).

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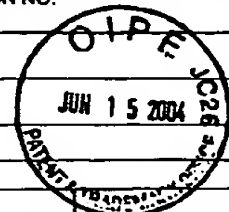
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	AO6						Yes
							No
	AP6						Yes
							No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	6	Zhang, H. et al., "Visibility Culling Using Hierarchical Occlusion Maps," <i>Computer Graphics Proceedings, Annual Conference Series - SIGGRAPH '97</i> , pp. 77-88 (August 1997).				
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